



Review of Cobbora Coal Project

Environmental Assessment - Appendix R (economic assessment)

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Executive Summary

Economists at Large have reviewed the Economic Assessment of the Cobbora Coal Project written by Gillespie Economics. Contrary to the claim in the Environmental Assessment that “the EA includes a full comparison of the Project's costs and benefits” that “provides decision makers and other interested parties with a reliable indication of the Project's overall merits”, we find that the economic assessment significantly overstates the benefits of the project while understating the costs. The Assessment should be revised to account for the following issues:

Project benefits

By adopting a definition of the project that differs with the rest of the Environmental Assessment and Cobbora Holdings’ own website, the economic assessment finds a net present value (NPV) of around \$2b. By adjusting this narrow definition of the project to address the actual impacts on the people of NSW, however, we see that the likely NPV is -\$1b, an overstatement of \$3b.

Greenhouse gas emissions

The economic assessment includes only direct emissions of the mine, rather than the increase in emissions attributable to the project, as is standard in economic analysis. Such an estimate is easily obtained from published estimates of coal price elasticities. This omission results in an understatement of the project’s costs of approximately \$4b.

Social value of employment

The use of social value of employment in economic evaluation of coal projects has been criticised by many of Australia’s most prominent economists and charitably labelled as “contentious”. With the existence of this value in doubt, the magnitude included in the economic assessment (\$192m) is at best a wild overstatement.

Noise, dust, vibration and amenity impacts

None of these impacts have been adequately assessed through property evaluation and impacts on residents outside noise-affected areas have not been quantified at all. This is clearly inappropriate in economic analysis.

Value of rural communities

In other studies Gillespie Economics have calculated a value for the impact of mines on rural communities, but have failed to incorporate this value into this assessment. By their own estimates this may overstate the value of the project by \$1.9b.

Ecology and water quality

The assumption that offsets will perfectly substitute for impacts on ecology and water quality is unrealistic and contested by experts in these fields. This serves to overstate the value of the project.

Road and rail transport

The assumption that impacts on road and rail transport construction and maintenance will be adequately covered by capital expenditure is contrary to recent local experience and serves to overstate the value of the project.

Health impacts

No impact on health is incorporated in the economic assessment, despite this issue garnering much attention in the local region.

Transparency

Most calculations in the economic assessment are not replicable with the information provided, those that are result in values significantly different to those reported. This must be explained for the assessment to have any validity.

Input Output modelling

The use of input output modelling in the economic impact statement serves to overstate the project's impacts on economic activity and employment. This is well known by the Australian Bureau of Statistics who have published warnings about inappropriate use due to the lack of resource constraints and no impact on price estimates.

In the economic assessment of the Cobbora Coal project, Gillespie Economics have overstated the project's benefits and understated its costs to the extent that there is no doubt the project represents a net loss to the welfare of the NSW public. The project should be rejected without hesitation based on this assessment.

Introduction

Background

The proposed Cobbora Coal Project is for an open-cut mine into agricultural land and native vegetation 60km east of Dubbo, NSW. The proposal is for a 21-year open cut mine which will mine up to 20 mega tonnes of coal per year. The proponent is currently seeking planning approval and has prepared an Environmental Assessment.

Local community group, the Mudgee District Environment Group (MDEG) is concerned that the proposed project will affect agriculture, the community, indigenous heritage and threatened ecosystems and species, which include owls, woodland birds, freshwater fish and bat species. Many communities in Australia are facing similar issues and are concerned that the often-touted benefits of the mining boom may be overstated and/or not accruing to local people.

This submission

The MDEG is making a submission on the Cobbora Coal Project Environmental Assessment. As part of their submission they have asked Economists at Large to review *Appendix R - Economic Assessment*. We consider there are a number of very significant issues in the economic assessment, which, without being addressed, would render the assessment unsuitable to contribute to decision-making:

- **Project definition and treatment of benefits**
- **Omission of greenhouse gas impacts**
- **Inclusion of social value of employment**
- **Treatment of noise, dust, vibration, amenity, ecology and water quality**
- **Omission of social value of rural communities**
- **Omission of road and rail transport impacts**
- **Omission of health impacts**
- **Lack of transparency in key calculations**

These issues contradict the claim in the Environmental Assessment that:

the EA includes a full comparison of the Project's costs and benefits. Monetary values for intangible factors have been estimated using proven techniques. The overall result is an inclusive comparison that provides decision makers and other interested parties with a reliable indication of the Project's overall merits. (p507)

We believe that this is not the case. All the above issues need to be clarified and adjustments made to the economic assessment of the project to ensure a decision is made in line with the NSW public interest. Doing so would not only allow for the best outcome in relation to this project, but could serve as a guide for other projects in the area and nationally.

This is occurring at a time when the mining industry is perceived as lacking a “social licence to operate” in farming areas. Conflicts between farming communities and coal and coal seam gas developments are making headlines regularly, with farmers and the broader community losing confidence that such developments are in the community’s best interests. Robust and transparent assessment of this project could help to address this issue.

Project definition and distribution of costs and benefits

The most immediately unusual aspect of the Gillespie Economics assessment is the finding that the project represents a net benefit to the Australian community of almost \$2b, while other reports suggest the project could represent a loss of \$6b to taxpayers (Robins, 2011). Commentators across the political spectrum are convinced that it represents a sizeable loss to the public:

[The] more I look at Cobbora the more disturbing it is. (NSW Liberal government Treasurer, Mike Baird in Estimates paper)

Cobbora coal mine, in the State's central west near Dunedoo, is about to become an economic and environmental millstone around the State's neck for the next two decades. (Greens MLC, John Kaye)

The reason that Gillespie Economics' conclusion is so different to these other commentators is that their definition of the Cobbora project is very narrow, consisting of the mining and washing of coal and delivery to port or rail. This delivered coal is then valued at \$77 per tonne.

This project definition is different to that identified in the first paragraph of the environmental assessment and on the Cobbora Holding Company (CHC) website:

The Cobbora Coal Project (the Project) is a coal mine that will be developed near Cobbora in the central west of New South Wales (NSW). Most of the coal will be produced for Macquarie Generation, Origin Energy and Delta Electricity to generate electricity at four of the six large coal-fired power stations operating in NSW. Some coal will also be produced for spot sales, most likely to the same electricity generators, or for export. (EA executive summary, paragraph 1)

CHC has 17-year coal supply contracts with Macquarie Generation, Delta Electricity, Origin Energy. These contracts will supply about 30% of all the coal used for electricity production in NSW and are essential for the secure supply of electricity in the state. The remaining coal required for power generation will need to be sourced from other private mine operators. (EA Executive summary paragraph 6)

The coal will be sold to these generators not at a market price, but at a "pre-agreed price", of \$31.16 per tonne (NSW Auditor-General, 2011). The difference between valuing the project with a coal price of \$77 and \$31 per tonne is clearly significant, at this price suggesting a net present value of minus \$1b:

Product coal (Mtpa)	9.5
Coal price	\$31
Discount rate	7%
Mine life	21 years
Present value revenue	\$3.4b
Present value production costs (Economic assessment)	\$4.4b
Net Present Value @ \$31	-\$1b

The difference between the value of the project at \$77 per tonne and the “pre-agreed price” represents a benefit, or subsidy, to the chosen generators. Gillespie Economics point out that the main beneficiaries of the project are these generators who gain, by their estimates, \$1,856m.

[The main beneficiaries are] *coal-fired power generators through the provision of lower cost coal and subsequently NSW electricity consumers (and to a lesser extent Australian electricity consumers) through the provision of lower cost electricity (estimated at \$1,856M).*

While the inclusion of the benefits accruing to the generators is appropriate in cost benefit analysis, the crux of the matter is how much the NSW public will benefit from the project. It is disappointing that Gillespie Economics dealt with this most important issue in a footnote:

The extent to which lower cost coal provided to electricity generators is passed through to electricity consumers in the form of lower cost electricity will depend on the level of competition faced by electricity generators. In a competitive market, all of this benefit would be passed through to electricity consumers. The deregulation of electricity providers in NSW aimed to promote competition, customer choice and potentially cheaper electricity. To the extent that this deregulation has been successful, then the provision of cheaper coal will be passed on to electricity consumers. However, from an economic perspective, even if the benefit accrues to the electricity generators and their shareholders this is still an economic benefit of the Project

This passage warrants careful consideration:

The extent to which lower cost coal provided to electricity generators is passed through to electricity consumers in the form of lower cost electricity will depend on the level of competition faced by electricity generators.

Costs faced by electricity consumers in Australia depend not only on competition between generators, but also on distribution and retailing. In fact, consumer prices are “highly regulated” and are made up of 10% retailer costs, 45% network costs and 45% generation costs (RBA, 2010). Discussion of competitiveness of the National Electricity Market is beyond the scope of this submission, but it seems unlikely that the project will deliver any real discount to NSW electricity customers.

In a competitive market, all of this benefit would be passed through to electricity consumers.

This statement is incorrect. In a competitive market, suppliers price their product equal to their long run marginal cost. If all suppliers were given a subsidy, then the whole industry’s costs would decline and prices would also fall, passing benefit to consumers (or at least to distributors and retailers). But where only three suppliers are subsidised they can either take the subsidy as a windfall or reduce their price to the subsidised marginal cost. Doing this would pass benefits onto their buyers (in this case retailers and then consumers), but at the expense of non-subsidised generators. The loss to non-subsidised generators is not considered by Gillespie Economics.

The deregulation of electricity providers in NSW aimed to promote competition, customer choice and potentially cheaper electricity. To the extent that this deregulation has been successful, then the provision of cheaper coal will be passed on to electricity consumers.

If the aim of deregulating electricity in NSW is to promote competition, it would seem counter-productive to then apply a non-competitive policy such as a selective subsidy to favoured generators. This clearly anti-competitive policy works against the long run interests of consumers and other producers, ie renewable and gas-fired generators and non-subsidised coal generators.

However, from an economic perspective, even if the benefit accrues to the electricity generators and their shareholders this is still an economic benefit of the Project

This is true, with the obvious qualification that this benefit is being provided by the NSW people to three favoured coal-fired power generators. As calculated above, the NPV of the project to non-generators is approximately -\$1b, and the revenue that could have been enjoyed by the community is instead transferred to these generators, with the vague hope of consumers regaining some of this transfer through lower electricity prices. The clear message from the Gillespie Economics analysis is that the project is not in the interests of the NSW public.

Greenhouse gasses

Gillespie Economics omit the main impact on greenhouse gas emissions from their assessment, which is the marginal increase in the amount of coal burned in the world. The costs of CO₂ emissions relating to this increase represent a loss of welfare to the world. Gillespie Economics argue that this impact should not be included because “no approval is being sought for the burning of coal”. Economic analysis is concerned with all major impacts of a project, indeed Gillespie Economics point out in section 2.1, that cost benefit analysis is focused on comparing a “with project” and “without project” scenario. Omitting major impacts from the “with project” scenario simply because they do not require regulatory approval has no basis in economic analysis.

The Cobbora project will cause a small increase on the amount of coal used in the world. Even though its production will not be exported, export oriented mines that would otherwise have supplied the generators will now export more. Coal industry proponents often adopt the “drug dealer’s defence” – that if we did not sell the coal/drug to the users, someone else would, and our actions therefore make no difference. This is true to a large extent - most coal that would be consumed in the world would be substituted from other mines, but not all of it. The expansion of the coal supply that the project represents will exert some downward pressure on prices which will result in an increase in the amount demanded.

In the absence of the project, not all of the coal exported would be offset by production in other mines. To argue otherwise is to suggest that coal supply is perfectly elastic and therefore that coal price should not vary. This is clearly not the case. Some estimate of this effect can be made from published sources and consideration of the price elasticities of

supply and demand for coal. The standard analysis gives the equilibrium effect on aggregate quantity by the project as $\Delta(\epsilon/(\epsilon+\eta))$ where:

Δ is the initial change in supply
 ϵ is the elasticity of demand
 η is the elasticity of supply

The elasticity of demand for coal is estimated by (Ball & Loncar, 1991) at -0.3. Estimates of the elasticity of supply vary widely. (Light, Kolstad, & Rutherford, 1999) cite a range of estimates from 0.3 to 2.0 and conclude that the best estimate is around 0.5.

Using the Light, Kolstad and Peterson point estimate, if the project did not proceed, yielding a reduction in supply of 9.5 million tonnes per year for 21 years¹, approximately 200 million tonnes. The equilibrium market outcome would be a reduction in total output and consumption of $200 \times (0.3/(0.3+0.5)) = 75$ million tonnes, with associated emissions of 180 million tonnes of CO₂. At a price of \$23/tonne, the implied social cost is over \$4 billion, which substantially exceeds the estimated benefits of the project. Using an elasticity of 1, the implied reduction in total output and consumption is approximately 45 million tons of coal, or 110 million tonnes of CO₂, with an associated social cost of over \$2.5 billion, still greater than the net benefits of the project.

The greenhouse gas impacts of the project estimated in the economic assessment relate only to the direct emissions of the project. To understand the full impacts of the project Gillespie Economics need to incorporate the impact of the increase in coal consumed in the world. This impact is not equivalent to greenhouse from combustion of all of the product coal, as is sometimes contested by anti-coal groups. In the absence of the project, most of this consumption would have been sourced from other coal mines. The economic assessment should, however, include the emission from the additional coal burned as a result of the project.

Social value of employment

The values claimed as social value of employment are misleading. We have argued this in submissions on the Boggabri Coal Project, Warkworth Coal Project, Maules Creek Coal Project and others. The proponents of the Maules Creek Coal Project commissioned Professor Jeff Bennett of the Australian National University to review the economic assessment of that project, also by Gillespie Economics, which also included a “social value of employment”. In relation to the inclusion of this value, Professor Bennett said:

[The] EIA's inclusion of benefits associated with employment [is contentious]. The argument advanced is that people outside of the mine workforce enjoy benefits associated with people having jobs in the mine. The values of this 'existence benefit' of work estimated for the case of a mine in the southern coal field are 'transferred' to the current case. A number of points argue against this approach. First, there is a

¹ <http://www.cobbora.com/>

conceptual issue. In a fully employed economy, it is doubtful that people employed in the new mine would be drawn from the ranks of the unemployed. So people outside the mine are unlikely to hold any existence benefits for the jobs provided by the mine in that case. Second, there is an estimation issue concerning the use of a benefit estimate transferred from another context. The conditions in the southern coalfield – the context of the source of the benefit estimate are very different from the proposed mine context..... [The] inclusion of the employment benefit as a component of the EIA is not recommended. Their inclusion would overstate the extent of proposal benefits. (Bennett 2011)

These are the words of one of Australia's most senior academic economists and the lead author of one of the papers Gillespie Economics cite to justify their inclusion of this value. Professor Bennett is not alone in his criticisms of Gillespie Economics' use of a social value of employment. Another prominent academic has criticised it (Quiggin, 2012), as has the executive director of The Australia Institute (Denniss, 2012) and leading private sector consultants (Deloitte Access Economics, 2012). With so many high-profile economists opposed to the inclusion of this value in assessments of coal projects, it is a source of considerable bemusement to us as to how Gillespie Economics can continue to incorporate it. We call on Gillespie Economics to desist from including this discredited value in their work entirely.

Noise, dust, vibration, amenity impacts

All of these impacts are assigned zero values beyond the cost of mitigation measures which are incorporated into the capital costs of the project. Gillespie Economics consider that land acquisition largely offsets these impacts within the affected zone:

Owners of the properties within the Project noise affection [sic²] zone have or will be given the opportunity to be acquired by CHC. Instead of incorporating the partial property value impact on this property, conservatively, the full cost of acquiring them has been incorporated into the capital costs of the project.

This implies that the acquisition process proceeds smoothly and without controversy. However this is not the case according to the Mudgee District Environment Group. They claim that higher than market prices were paid for key properties for the development of the project, ie those on top of the coal resource. This leads to increased valuation by the Valuer General and therefore rates paid. This has occurred in the Bylong Valley area. However banks dropped their valuation of other properties in proximity to the mine due to lost amenity, affecting local mortgage payments. Decreased valuation by banks has left some properties stranded, with the only prospective buyer being the mine. This has left the mine in a position to influence prices, with clear losses to local residents. Examples of this occurring, suggested by the Group, are properties in the Wilpinjong mine area and the Derowan property in the Wollar Valley.

² We assume this is a typo and that there is not a zone with a real affection for excessive noise, which would give the project considerable positive externalities!

Gillespie Economics do acknowledge “that there may also be some consumer surplus losses to these property owners above and beyond changes in property values”. The euphemism of consumer surplus disguises the real personal and social cost of the acquisition programme.

Gillespie Economics consider that there is no need to value impacts on the community outside the affected zone, provided they remain within legislated guidelines. This is inappropriate as compliance with guidelines does not mean community welfare is unaffected in these areas. Local people who are affected by these impacts, but are not compensated for them, incur economic costs of this project. Furthermore, the Mudgee District Environment Group claim the estimates of noise-affected areas are inaccurate and are planning to contest them. Failure to acknowledge such impacts and estimates serves to overstate the value of the project.

Value of rural communities

Gillespie Economics conducted a non-market valuation exercise in relation to the impacts of the Warkworth Coal Project in 2009 (Gillespie Economics, 2009). This study estimated values for several non-market aspects of that project, including social value of employment, impacts on aboriginal heritage and the value of rural communities. The values for social value of employment and on aboriginal heritage have been incorporated into this assessment, while the value that the people of NSW place on the social fabric of rural communities has not.

The Warkworth Project choice modelling survey estimated that the NSW public places a value on rural households displaced of \$38m per household. The Mudgee District Environment Group claims a conservative estimate of number of households to be displaced of 50 households. By Gillespie Economics own estimates this damage to the social fabric of rural communities results in a loss to the NSW public of $\$38m \times 50 = \$1.9bn$, approximately equal to Gillespie Economics’ original estimate of NPV.

Economists at Large have been critical of the study (Gillespie Economics, 2009), we argued in (Campbell, 2012) that the study contains various methodological flaws. These criticisms are largely supported by (Deloitte Access Economics, 2012) and (PAC, 2012), although the study was accepted for publication in an academic journal, albeit an obscure one (Gillespie & Bennett, 2012). While the merits of the study are open for debate, Gillespie Economics should explain why this value, or at least some value reflecting the public concern for rural communities, was not incorporated into the present cost benefit analysis.

Ecology and water quality

Impacts on ecology and water quality are assumed to be offset by an ecological offset programme and no value assigned to any damage that may be caused. This is inappropriate as it ignores the considerable debate between ecologists over the ability of offset programmes to achieve their aims in many cases. See (Bekessy et al., 2010) for example. We suggest it is beyond the expertise of Gillespie Economics to adjudicate in these debates between physical scientists. The allocation of zero values to these external costs is just such a judgement.

When the necessary revisions are made to the Economic Assessment, we also recommend the proponents take note of Curtis (2011), who estimates the value of the ecosystem goods and services lost due to the clearing of the Leard State Forest at some \$490,000 per annum. Curtis also urges analysis of land values to consider losses of amenity and social value to the community. Curtis's study is based on revealed preferences in markets, widely considered preferable to stated preference techniques.

Road and Rail transport

Gillespie Economics assume that required upgrades to road and rail transport are included in the capital costs of the projects. Local councils are finding, however, that Voluntary Payment Agreements do not cover the long term costs of local road maintenance and transfer a financial cost to the Mid-Western Regional Council. Major upgrades of roads relating to coal mines at Ulan have resulted in rate payers incurring losses of perhaps \$17m. Similar issues have been reported for rail infrastructure.

Health Impacts

The cost benefit analysis makes no mention of the impacts on human health of open-cut coal mining and transportation, despite this issue garnering considerable attention in the region, the media and academic writing. External impacts such as health can be measured and quantified in economic terms, as pointed out in Gillespie and James (2002):

[C]ertain kinds of social impacts, such as social dislocation or adverse health effects, may be partially appraised in monetary terms. (p21)

Such appraisal would be assisted by a recent NSW Department of Health report looking at morbidity and mortality in regions of the Hunter Valley affected by mining (NSW Health 2010a). They found that the regions in the Hunter most affected by mining have higher rates of emergency department attendances for asthma and other respiratory conditions; hospital admissions for respiratory conditions and cardiovascular disease and mortality due to cardiovascular disease and all cause mortality. Analysis of presentations to GPs also suggested higher rates of asthma and other respiratory conditions in communities affected by mining, although not statistically significant (NSW Health 2010b).

There are significant limitations to these studies, including that they do not adequately take account of other population factors affecting health in these areas, and that the number of people in the affected areas are small, making comparisons difficult. However, both studies confirm the work of others, showing that exposure to pollutants, particularly particulate matter is an important causative factor in respiratory and cardiovascular disease. It is also well recognised that there is no threshold level for negative health impacts of particulate pollution. There will be people affected by particulate air pollution which will result in economic costs. Omitting these costs serves to overstate the value of the project.

Transparency and calculations

The economic assessment omits data that are important for understanding the project, recreating the assessment's calculations and assessing the economic merit of the project. Major omissions include:

- Estimate of run-of-mine (ROM) coal, but no estimate of production coal volumes
- No discussion of coal specifications, only that it is of "lower energy value". Any assessment of a coal project should include specifications of likely moisture, ash and sulphur content and estimates of the energy value. These are essential in assessing the coal and the prices likely to be paid for it.
- Discussion of price used in assessment. Coal prices can be volatile and the assessment should consider the variability and likelihood of such movements.
- Sensitivity analysis provides very little useful information, only that the project's value is sensitive to changes in capital and operating costs, the value of coal and the discount rate. Without consideration of the likelihood and extent of these variations and their cumulative effects it is impossible to gauge the range of value of the project.
- The figures presented in the executive summary of both the economic assessment and the overall Environmental Assessment's as the range of net present values possible for the project, \$1,937-\$2,138m relate only to the inclusion or exclusion of the invalid employment externality. These values have no relation to the sensitivity testing of the project and are presented in a way likely to mislead unwary readers.

Due to the lack of data outlined in the economic assessment it is impossible to recreate the present value calculations and check their veracity. For example, calculating the present value of average annual operating costs, reported as \$392m, results in a value of \$4.5billion (21 years, 7% discount rate) while the economic assessment estimates only \$3.2b. This result is unusual as it suggests costs will be greater later in the mine's life.

Without more data and transparency in calculations, decision makers should treat the figures in the economic assessment with great caution.

Input Output modelling

The use of input-output modelling in the regional economic impact assessment section of the socio-economic assessment creates a misleading impression of the impacts of the project. Input-output modelling has fallen from favour with economists for many reasons, the main ones being explained by the Australian Bureau of Statistics (ABS, 2011):

Lack of supply-side constraints: *The most significant limitation of [input-output modelling] is the implicit assumption that the economy has no supply-side constraints. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or near capacity.*

Fixed prices: Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. Prices are assumed to be unaffected by policy and any crowding out effects are not captured.

These limitations are obvious to the local community, who experience difficulties accessing tradesmen and other services. These shortcomings are also becoming obvious to other sectors of the economy, particularly manufacturing and agriculture, as they struggle with the downside of the mining boom. Yet this obvious downside is ignored by input-output modelling. As (Abelson, 2011) put it:

I–O models lack resource constraints and fail to capture significant welfare (consumer and environmental) impacts. They always produce a positive gain to the economy, however disastrous the event.

Had the assessment used more appropriate methods, such as general equilibrium modelling, the benign impacts on other sectors shown in table 3.5 (p30) would look different. Instead of showing modest growth in employment of other industries, we would see that expansion of mining operations, particularly in a tight labour market, has a negative effect on other industries.

This point is reinforced by economic analysis of the China First Coal Project in Queensland, carried out for the proponents of that mine using computable general equilibrium modelling. AEC group (2010) found that not only would that mine not carry social value of employment, but that proceeding with that project in the current labour market was likely to result in the loss of significant numbers of jobs in the agriculture and manufacturing industries. Compare these results to those obtained through input-output modelling:

Mine Project	Forecast impact on manufacturing employment	Forecast impact on agricultural employment
Cobbora	+67	+7
China First	-2215	-192

Sources: Gillespie Economics, 2012, AEC Group 2011.

While the China First Project is larger than the Cobbora project, this comparison shows the differences between modelling methods. While general equilibrium modelling, with its more realistic assumptions shows that the China First Project will destroy thousands of jobs in agriculture and manufacturing, the input-output modelling of the Cobbora project, with its lack of resource constraints and price changes, suggests an increase in employment.

We urge the NSW government to consider the wider effects of mining projects on other industries and the economy, which would be assisted by requiring more realistic modelling in economic impact assessment.

Conclusion

Contrary to the claim in the Environmental Assessment that “the EA includes a full comparison of the Project's costs and benefits” that “provides decision makers and other interested parties with a reliable indication of the Project's overall merits”, we see that the economic assessment significantly overstates the benefits of the project while understating the costs:

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By adopting a definition of the project that differs with the rest of the Environmental Assessment and Cobbora Holdings' own website, the economic assessment finds a net present value of around \$2b. By adjusting this narrow definition of the project to address the actual impacts on the people of NSW, however, we see that the likely NPV is -\$1b, an overstatement of \$3b.

Greenhouse gas emissions

The economic assessment includes only direct emissions of the mine, rather than the increase in emissions attributable to the project, as is standard in economic analysis. Such an estimate is easily obtained from published estimates of coal price elasticities. This omission results in an understatement of the project's costs of approximately \$4b.

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None of these impacts have been adequately assessed through property evaluation and impacts on residents outside noise-affected areas have not been quantified at all. This is clearly inappropriate in economic analysis.

Value of rural communities

In other studies Gillespie Economics have calculated a value for the impact of mines on rural communities, but have failed to incorporate this value into this assessment. By their own estimates this may overstate the value of the project by \$1.9b.

Ecology and water quality

The assumption that offsets will perfectly substitute for impacts on ecology and water quality is unrealistic and contested by experts in these fields. This serves to overstate the value of the project.

Road and rail transport

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Having reviewed the economic assessment, we believe its benefits have been overstated and costs understated to the extent that there is no doubt the project represents a net loss to the welfare of the NSW public. The project should be rejected without hesitation based on this assessment.

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